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SECURE TRASH CONTAINER ASSEMBLY

Field of the Invention

This invention relates generally to a trash container assembly constructed of plastic structural panels. More specifically, the present invention relates to a trash container assembly utilizing injection molded plastic panels capable of being packaged and shipped in a knocked-down state and constructed into a secure and decorative trash container.

Background Information

Refuse containers are a necessity for homeowners and business owners alike. Typically, refuse containers are positioned in convenient locations for trash disposal in the proximity of people using an area of a business or home. A common form of a trash container comprises a rigid body which forms an internal chamber with there being an access opening provided within a rim at the upper end of the internal chamber. A lid is connectable with the rim to close the access opening. When the lid is removed, trash is able to be thrown into and collected within the trash can body. Most modern refuse containers also house a separate, removable waste receiving receptacle such as a collapsible plastic bag. A common form of a trash bag is constructed of flexible

1 plastic which is held open by folding the bag over the lip of  
2 the container to facilitate the placing of trash into the  
3 bag. Once the bag is filled, the top of the liner is tied  
4 closed and lifted out of the container. U.S. Patent No.  
5 5,803,300 discloses rigid one piece a trash container with a  
6 bag holding mechanism which firmly supports a flexible walled  
7 plastic bag in an open configuration within the container.  
8 However, filled bags often seal against the side walls of the  
9 container causing difficulty in lifting the filled bags.  
10 U.S. Patent No. 5,390,818 teaches a trash receptacle for  
11 receiving and holding a flexible, collapsible trash liner.  
12 More particularly, the trash receptacle device provides a  
13 cavity formed in the lower portion of the trash receptacle,  
14 for use as a foothold for assisting a user in removing a full  
15 trash liner from the receptacle and a handhold to assist the  
16 user in transporting the receptacle.

17 Typically, the aforementioned containers provide  
18 portability for storage, but lack structural integrity and  
19 aesthetic appearance for use in commercial areas. In  
20 addition, a major problem with this type of prior art trash  
21 container arises when the wind or an animal overturns the  
22 trash container and spreads refuse on the ground. This  
23 situation is not only unsightly but may also be unsanitary if  
24 the receptacle is filled with food type refuse.

1        In an attempt to overcome the spillage problem trash  
2 containers have been provided with an attached top portion  
3 for the container. The top portion is usually provided with  
4 one or more openings, sometimes closed with a swinging door,  
5 through which the refuse may pass to be received by the waste  
6 receptacle within the container. The swinging doors are  
7 generally provided with a weight, spring, or mechanical  
8 mechanism which must be pushed open to place trash in the  
9 container. Because the top portion is securely attached to  
10 the container portion these containers are generally  
11 constructed with access doors in their side to facilitate  
12 removing a filled trash bag from the container portion.

13        U.S. Pat. No. 5,348,222 teaches a pedal operated garbage  
14 container with improved access to the interior when the lid  
15 is opened. In this container, a platform for supporting waste  
16 is pivoted to the opposite side walls at its forward edge,  
17 and a front wall extends upwardly from the forward edge of  
18 the platform. Operation of a pedal pivots the platform  
19 upwardly and the front wall outwardly, providing access to  
20 the interior. One or more waste receptacles are placed on the  
21 platform, and must be lifted out for emptying as needed. This  
22 is a relatively complex structure, with several internal  
23 pivotal linkages within the container linked to the pedal  
24 actuator.

1        While providing a partial solution to the overturning  
2 problem, the access doors used to place trash into this type  
3 of device often become unsanitary and transfer germs when  
4 they become soiled by one user and a second user must push  
5 the door open with their hand to place refuse in the  
6 container. In addition, most animals are capable of pushing  
7 the doors open and entering the container, but once inside  
8 they are unable to pull the door open to get out of the  
9 container without help.

10       U.S. Patent No. 4,923,080 teaches a trash receptacle  
11 that opens on the side so that the filled bag need not be  
12 lifted out of the receptacle.

13       U.S. Patent No. 5,984,134 teaches a trash container  
14 formed with an open fronted housing having a pivotally  
15 mounted front wall movable between a closed position and an  
16 open position displaced from the open front to allow a full  
17 trash bag to be removed readily from the housing, without  
18 having to lift the bag up and clear of the open upper end of  
19 the housing. A releasable locking device releasably locks the  
20 front wall in the closed position.

21       Typically, the structure of such devices are complex  
22 requiring numerous small metal and/or plastic fasteners and  
23 connector members to maintain a structurally sound container.  
24 Due to the complexity of these devices they are generally

1 only offered to consumers fully assembled and not in a kit  
2 form and therefore require large shipping containers or  
3 crates, thereby increasing the final cost of the product to  
4 the consumer.

5       Such prior art systems, while working well, have not met  
6 all of the needs of manufacturers to provide a product that  
7 can be easily manufactured, packaged and shipped to the  
8 consumer in a kit form. Nor have they met the needs of  
9 consumers requiring structural integrity combined with  
10 aesthetic appearance and ease of assembly without the need  
11 for tools and small fasteners for assembly.

12       Paramount among such needs is a panel system which  
13 creates a trash container having walls which resist panel  
14 separation, buckling, racking and weather infiltration.  
15 Structural integrity is a further consideration, the box  
16 formed by the panels must tie into the cover and bottom in  
17 such a way as to unify the entire enclosure. Also, from a  
18 safety standpoint, a cover should be present which can be  
19 easily latched and which provides dependable pivoting access  
20 to the lined trash container.

21       There are also commercial considerations that must be  
22 satisfied by any viable trash container kit; considerations  
23 which are not entirely satisfied by state of the art  
24 products. The trash container must be formed of relatively

1 few component parts that are inexpensive to manufacture by  
2 conventional techniques. The trash container box must also  
3 be capable of being packaged and shipped in a knocked-down  
4 state.

5 Finally, there are ergonomic needs that a trash  
6 container kit must satisfy in order to achieve acceptance by  
7 the end user. The trash container must be easily and quickly  
8 assembled using minimal hardware and requiring a minimal  
9 number of tools. Further, the trash container must not  
10 require excessive strength to assemble or include heavy  
11 component parts. Moreover, the trash container kit must  
12 assemble together in such a way so as not to detract from the  
13 internal storage volume of the resulting trash container or  
14 otherwise detract from the internal storage volume of the  
15 resulting assembled trash container or otherwise negatively  
16 affect the utility of the assembled trash container.

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1 Brief Description of the invention

2       The present invention provides a kit, of injection  
3 molded plastic panels having integrated connectors which is  
4 capable of being packaged and shipped in a knocked-down state  
5 and constructed to form a secure trash container. The  
6 integrated connection of the side wall, cover and bottom  
7 panel components simplifies trash container construction. The  
8 panels are formed of injection molded plastic to interlock  
9 with one another without the need for separate metal  
10 fasteners or connectors. The system incorporates a minimum  
11 number of components by integrally forming the connectors  
12 into the injection molded panels which are snapped together.  
13 This construction eliminates the need for separate extruded  
14 or molded connectors or fasteners to assemble the trash  
15 container. Injection molding allows the panels to be formed  
16 with integral cross-bracing, ribs and gussets for increased  
17 rigidity when compared to blow molded or rotationally molded  
18 containers. The same side wall and bottom panel components  
19 can be used to create a variety of trash containers and the  
20 assembly of the trash container requires minimal hardware and  
21 a minimum number of hand tools.

22       The bottom, left and right wall panels have outwardly  
23 projecting locking posts for interlocking cooperative  
24 engagement with sockets in the front and back panels. The

1 front and back side wall panels are constructed with inwardly  
2 contoured sockets for interlocking cooperative engagement  
3 with the locking posts on the sides of the left and right  
4 wall panels. The engagement between the locking posts and  
5 the sockets serve to rigidly connect the components together  
6 into a weather resistant trash container. The system further  
7 includes a two piece latching cover which is hingedly  
8 connected and latched into place after the front, back, side  
9 and bottom panels have been fully assembled. The retainer  
10 portion of the cover is constructed and arranged to cooperate  
11 with the side panels to support a conventional plastic trash  
12 bag without the need for metal frames, arms or fasteners.  
13 The lid portion is hingedly connected to the retainer portion  
14 of the cover to provide an opening to place trash in the  
15 container. The lid is provided with a latch means  
16 constructed and arranged to allow the lid to be latched in a  
17 closed position to prevent wind or animals from opening the  
18 container.

19 Accordingly, it is an objective of the present invention  
20 to provide a trash container assembly having panels with  
21 integrated connectors.

22 A further objective is to provide a trash container  
23 having panels with integrated connectors which accommodate



1 injection molding plastic formation of the panel components  
2 for increased structural integrity.

3 Yet a further objective is to provide a trash container  
4 assembly in which the side walls, cover, and bottom panel are  
5 integrally interlocked without fasteners.

6 Another objective is to provide an trash container  
7 assembly constructed of modular panels having an  
8 aesthetically pleasing appearance.

9 Yet another objective is to provide a kit for a trash  
10 can assembly that is capable of being packaged and shipped in  
11 a knocked-down state and constructed into a secure enclosure.

12 Other objectives and advantages of this invention will  
13 become apparent from the following description taken in  
14 conjunction with the accompanying drawings wherein are set  
15 forth, by way of illustration and example, certain  
16 embodiments of this invention. The drawings constitute a  
17 part of this specification and include exemplary embodiments  
18 of the present invention and illustrate various objects and  
19 features thereof.

1 BRIEF DESCRIPTION OF THE FIGURES

2       FIGURE 1 is a perspective view of one embodiment of the  
3 instant invention;

4       FIGURE 2 is an exploded view of the trash container  
5 shown in FIGURE 1;

6       FIGURE 3 is a perspective view of the trash container  
7 embodiment shown in FIGURE 1 with the cover panel in the open  
8 position;

9       FIGURE 4 is a perspective view of the trash container  
10 embodiment shown in FIGURE 1 with the cover panel in the  
11 closed position and the lid panel in the open position;

12       FIGURE 5 is a rear view of the trash container  
13 embodiment shown in FIGURE 1 illustrating the cover hinge  
14 means;

15       FIGURE 6 is a rear view of the trash container  
16 embodiment shown in FIGURE 1 illustrating the cooperative  
17 engagement of the cover hinge pins and the back panel;

18       FIGURE 7 is partial perspective view illustrating the  
19 lid panel latch;

20       FIGURE 8 is a partial section view along lines 1-1 of  
21 the trash container embodiment shown in FIGURE 7;

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1 Detailed Description of the Preferred Embodiments

2 While the present invention is susceptible of embodiment  
3 in various forms, there is shown in the drawings and will  
4 hereinafter be described a presently preferred embodiment  
5 with the understanding that the present disclosure is to be  
6 considered an exemplification of the invention and is not  
7 intended to limit the invention to the specific embodiments  
8 illustrated.

9 FIGS. 1-2 which are now referenced illustrate  
10 perspective and exploded views of the trash container  
11 assembly, generally referenced as 10, according to a  
12 preferred embodiment of the present invention. The trash  
13 container is made up of a floor panel 100, left side wall  
14 panel 200, right side wall panel 300, back wall panel 400,  
15 front wall panel 500 and cover panel 600. In the preferred  
16 embodiment, the panels comprising the assembly are formed of  
17 but not limited to a suitable plastic such as polystyrene or  
18 polyethylene, through the process of injection molding. The  
19 result is that the panels comprising the trash container 10  
20 are formed as unitary panels with integral connectors, and  
21 cross bracing. Strengthening ribs 202 and gussets 204 are  
22 formed within the inner surfaces of the wall panels, cover  
23 panel, and floor panel in order to enhance rigidity of the  
24 panels while leaving the external surface in a generally

1 smooth condition for aesthetic purposes, as shown in FIG. 2.  
2 The floor panel 100 has a top surface 104, bottom surface  
3 106, and like-constructed front, back, left, and right edges  
4 108, 110, 112, and 114 respectively. Along each of the  
5 floor panel edges is a means of attaching the floor panel to  
6 the left 200, right 300, back 400, and front 500 wall panels  
7 illustrated as a plurality of formed interlock posts 116  
8 extending outwardly from each edge. The interlock posts 116  
9 are constructed and arranged to cooperate with interlock  
10 sockets 210 extending inwardly along the bottom edges 206,  
11 306, 406, 506 of the left, right, back, and front wall panels  
12 respectively. The locking posts 116 and sockets 210 are  
13 constructed and arranged so that the locking posts 116 enter  
14 and mateably engage the interlock sockets 210 securing the  
15 panels together in an inter-fitting engagement and  
16 perpendicular arrangement. Detent or snap-type fasteners,  
17 such as those illustrated at 118 cooperate with apertures  
18 208, to secure the interlock posts 116 to the interlock  
19 sockets 210. Those skilled in the art will appreciate that  
20 the snap-type fasteners 118 can be used throughout the trash  
21 container 10 to mount or secure components to one another,  
22 and to facilitate ready assembly of the trash container if it  
23 is provided in an unassembled kit form. The overlapping  
24 interlock post 116 and interlock socket 210 arrangement

1 increase the structural integrity of the trash container 10  
2 by preventing the panels 200, 300, 400, 500 from bowing or  
3 bending inwardly or outwardly, and thus, adversely affecting  
4 the appearance or operation of the trash container 10.

5       The left wall panel 200 is configured having a first  
6 edge 212 and a second edge 214. Both edges 212, 214 include  
7 an integrally formed attachment means illustrated as at least  
8 one and preferably three elongated contoured interlock posts  
9 216 extending outwardly in a linear fashion along each edge.  
10 The interlock posts 216 are generally constructed and  
11 arranged to cooperate with the contoured interlock sockets  
12 410 and 510 provided in either edge of the back panel 400 and  
13 front panel 500.

14       The right wall panel 300 is configured having a first  
15 edge 312 and a second edge 314. Both edges 312, 314 include  
16 an integrally formed attachment means illustrated as at least  
17 one and preferably three elongated contoured interlock posts  
18 316 extending outwardly in a linear fashion along each edge.  
19 The interlock posts 316 are generally constructed and  
20 arranged to cooperate with the contoured interlock sockets  
21 410 and 510 (not shown) provided in either edge of the back  
22 panel 400 and front panels 500.

23       The outer surface of the panels 200, 300, 400, 500 are  
24 constructed generally smooth having a plurality of inwardly

1 bowed grooves 230 for added strength and aesthetic  
2 appearance. The inside of the panels 200, 300, 400, 500 are  
3 constructed with a plurality of strengthening ribs 202  
4 extending across the panels with a portion of the ribs 202  
5 being provided with a plurality of gussets 204 to further  
6 strengthen the panels. The ribs 202 and gussets 204 increase  
7 the structural integrity of the trash container 10 by  
8 preventing the panels 200, 300, 400, 500 from bowing or  
9 bending inwardly or outwardly, and thus, adversely affecting  
10 the appearance or operation of the trash container 10. The  
11 integrally formed ribs 202 and gussets 204 are facilitated by  
12 injection molding. Injection molding offers significant  
13 strength and stability advantages over blow-molding or spin  
14 molding as utilized in the prior art. In this manner the  
15 container of the instant invention is capable of handling a  
16 significant amount of weight as compared to prior art plastic  
17 trash containers.

18 The left and right side panels 200, 300 are attached to  
19 the floor panel 100 by inserting the contoured interlock  
20 posts 116 into the interlock sockets 210 until the spring  
21 tabs 118 engage the apertures 208 in the sockets 210 of the  
22 left 200 and right 300 panels.

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1       The front and back panels 400, 500 are attached to the  
2 left 200, right 300, and floor 100 panels by inserting the  
3 contoured interlock posts 116 and 216 into interlock sockets  
4 210 and 410 respectively until the spring tabs 118 integrally  
5 formed into the contoured locking posts 116 and 216 engage  
6 the apertures 208 in the sockets of the front and back panels  
7 400, 500. It will be appreciated that the purpose of the  
8 contoured elongated interlock posts 116 and 216 are to align  
9 two panels in a perpendicular relationship and to facilitate  
10 their mechanical connection. The perpendicular panels are  
11 brought into an overlapping relationship wherein the  
12 contoured interlock posts 116, 216 enter the corresponding  
13 interlock sockets 210, 410 in the front, back, left, and  
14 right panels 200, 300, 400, 500 respectively. The result is a  
15 mechanically secure connection between the panels. The  
16 overlapping edges between the panels as described above  
17 provides a secure connection and offers several advantages.  
18 First, the design allows the panels to be connected without  
19 the need for separate connectors. Second, the design creates  
20 a positive lock that prevents separation of the panels.  
21 Third, the design maintains alignment of the panels in the  
22 same plane and prevents bowing or bending of either panel  
23 relative to one another. The resultant trash container  
24 created by the combination of the interlocking panels

1 benefits from high structural integrity and reliable  
2 operation.

3 Referring to FIGS. 3-6, perspective and section views of  
4 the trash container illustrating the pivotal operation of the  
5 cover 600 and lid 612. Also illustrated is the construction  
6 and arrangement of the separable hinge means assemblies. The  
7 hinge assemblies generally include a plurality of hinge pins  
8 404 and a plurality of cooperating hinge pin receivers 602.  
9 The hinge pin receivers 602 are generally a pair of  
10 downwardly depending supports 602 located adjacent to the  
11 back edge 610 of the cover 600 and are constructed and  
12 arranged to cooperate with a cover hinge pin 404 to allow  
13 pivotal movement of the cover 600. The hinge pins 404 are  
14 each integrally formed into the upper portion of the back  
15 panel 400 and supported an outwardly depending support 420.  
16 The hinge pins 404 cooperate with their respective hinge pin  
17 receivers 602 to allow pivotal movement of the cover 600 and  
18 also allow the cover 600 to be removed when in the open  
19 position by lifting the cover upward and sliding the hinge  
20 pin receiver 602 outward from the pins 404. The cover 600 is  
21 releasably secured in place by pivoting the cover downward  
22 until the spring latch 622 integrally formed into the cover  
23 panel 600 engage at least one corresponding catch 520 formed



1 in the front portion of the front panel 500. The result is a  
2 positive mechanical connection.

3 Referring to FIGS. 7-8, the removable lid 612 is  
4 illustrated in cooperation with the cover panel 600. The lid  
5 612 is constructed and arranged with a hinge assembly to  
6 provide pivotal access to the interior of the trash container  
7 10 while it is in the open position. The hinge assemblies  
8 generally include a plurality of hinge pins 614 and a  
9 plurality of cooperating hinge pin receivers 616. The hinge  
10 pin receivers 616 are integrally formed into the top outer  
11 portion of the cover panel 600 and are constructed and  
12 arranged to cooperate with a lid hinge pin 614 to allow  
13 pivotal movement of the lid 612. The hinge pins 614 are each  
14 supported by a downwardly depending lip 618 located adjacent  
15 to the back edge 620 of the lid 612. The hinge pins 614  
16 cooperate with their respective hinge pin receivers 616 to  
17 allow pivotal movement of the lid 612 and also allow the lid  
18 612 to be removed when in the open position by lifting the  
19 lid upward and sliding the pins 614 outward from the hinge  
20 pin receiver 616.

21 It should be appreciated that the hinge assemblies allow  
22 the cover 600 and/or the lid 612 to be installed and/or  
23 removed when the cover 600 or lid 612 is in the open position

1 and yet the cover and lid are secure and non-removable when  
2 in the closed position.

3       The lid 612 is releasably secured to the cover 600 in a  
4 closed position by sliding the cover latch 624 inward until  
5 the detent 622 integrally formed into the cover latch 624  
6 engages at least one corresponding indentation 628 formed in  
7 the front portion of the lid 612. To open the lid 612, the  
8 cover latch 624 is pulled outward until the detent 622 is  
9 released from the indentation 628 and the lid is pivoted  
10 upwards. The result is a positive mechanical connection  
11 between the side walls of the container, the cover, and the  
12 lid that resists opening by winds or animals, and yet  
13 provides easy access for placing trash in the container.

14       All patents and publications mentioned in this  
15 specification are indicative of the levels of those skilled  
16 in the art to which the invention pertains. All patents and  
17 publications are herein incorporated by reference to the same  
18 extent as if each individual publication was specifically and  
19 individually indicated to be incorporated by reference.

20       It is to be understood that while a certain form of the  
21 invention is illustrated, it is not to be limited to the  
22 specific form or arrangement herein described and shown. It  
23 will be apparent to those skilled in the art that various  
24 changes may be made without departing from the scope of the

1 invention and the invention is not to be considered limited  
2 to what is shown and described in the specification.

3       One skilled in the art will readily appreciate that the  
4 present invention is well adapted to carry out the objectives  
5 and obtain the ends and advantages mentioned, as well as  
6 those inherent therein. The embodiments, methods, procedures  
7 and techniques described herein are presently representative  
8 of the preferred embodiments, are intended to be exemplary  
9 and are not intended as limitations on the scope. Changes  
10 therein and other uses will occur to those skilled in the art  
11 which are encompassed within the spirit of the invention and  
12 are defined by the scope of the appended claims. Although  
13 the invention has been described in connection with specific  
14 preferred embodiments, it should be understood that the  
15 invention as claimed should not be unduly limited to such  
16 specific embodiments. Indeed, various modifications of the  
17 described modes for carrying out the invention which are  
18 obvious to those skilled in the art are intended to be within  
19 the scope of the following claims.

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